WHAT IS CLAIMED IS:

1. An optical fiber splicer for splicing a plurality of first optical fibers arranged in spaced relationship with each other and a plurality of second optical fibers arranged in opposed relationship with said first optical fibers, said optical fiber splicer comprising:

an XY table movable in an X direction and a Y direction orthogonal to said X direction;

a tray mounted on said XY table;

means for fixing said first and second optical fibers to said tray so that said first and second optical fibers are opposed to each other in close relationship;

first and second clamp means for respectively clamping a selected one of said first optical fibers and a selected one of said second optical fibers to be spliced to said selected first optical fiber;

a first electrode extending vertically and movable vertically;

a second electrode aligned with said first electrode at a position above said first electrode, said second electrode extending vertically and movable vertically;

a first camera provided on one side of said first

electrode in a direction orthogonal to a direction of extension of said selected first and second optical fibers;

a second camera provided on the other side of said first electrode opposite to said first camera in a direction orthogonal to said direction of extension of said selected first and second optical fibers; and

means for processing images picked up by said first and second cameras.

2. The optical fiber splicer according to claim 1, further comprising a fiber lifting mechanism for lifting said plurality of first and second optical fibers.

3. The optical fiber splicer according to claim 2, wherein said fiber lifting mechanism comprises:

a first lifting bar extending below said plurality of first optical fibers in a direction orthogonal to the direction of extension of said first optical fibers, said first lifting bar having a curved upper surface for bending said first optical fibers; and

a second lifting bar extending below said plurality of second optical fibers in a direction orthogonal to the direction of extension of said second optical fibers, said second lifting bar having a curved upper surface for bending said second optical fibers.

4. The optical fiber splicer according to claim 3, wherein said first lifting bar can form a first bent portion in said selected first optical fiber in a condition where said selected first optical fiber is clamped by said first clamp means; and

said second lifting bar can form a second bent portion in said selected second optical fiber in a condition where said selected second optical fiber is clamped by said second clamp means.

5. The optical fiber splicer according to claim 1, further comprising an electrode retracting mechanism for moving said first and second electrodes away from each other.

6. The optical fiber splicer according to claim 1, wherein each of said first and second clamp means comprises a lower clamp having a V groove and an upper clamp having a projection complementary in shape to said V groove.

7. The optical fiber splicer according to claim 6, wherein said lower clamp is movable both in a horizontal plane and in a vertical plane.

8. The optical fiber splicer according to claim 7, further comprising a clamp interlocking mechanism for interlocking said lower clamp and said upper clamp.

9. The optical fiber splicer according to claim 1, wherein said plurality of first optical fibers are connected at their one ends to a plurality of optical components mounted on a substrate; and

said plurality of second optical fibers are sandwiched between first and second resin sheets of a fiber sheet and project from between said first and second resin sheets.

10. The optical fiber splicer according to claim 9, wherein said substrate has a pair of side walls each formed with a plurality of fiber positioning recesses, said first optical fibers being inserted in said fiber positioning recesses.

11. The optical fiber splicer according to claim 1, wherein said first and second cameras are located so that the optical axes of said first and second cameras intersect at right angles.

12. The optical fiber splicer according to claim 6, further comprising a fine adjusting mechanism provided integrally with said lower clamp in each of said first and second clamp means.

13. An optical fiber splicer for splicing at least one pair of optical fibers in a first group of plural optical fibers and a second group of plural optical

fibers respectively opposed to said first group of plural optical fibers in a condition where a first gap is defined between the opposed end faces of said pair of optical fibers, said optical fiber splicer comprising:

deforming means for bending a part of at least said first group of optical fibers except said pair of optical fibers before splicing to thereby define a second gap larger than said first gap between the opposed end faces of said pair of optical fibers; and

splicing means for splicing said pair of optical fibers after reducing said second gap to said first gap.

14. The optical fiber splicer according to claim 13, wherein at least said first group of optical fibers except said pair of optical fibers includes an optical fiber adjacent to said pair of optical fibers.

15. An optical fiber splicing method comprising the steps of:

arranging a plurality of first optical fibers in spaced relationship with each other;

arranging a plurality of second optical fibers at one end of each of said second optical fibers in opposed relationship with one end of each of said first optical fibers;

clamping an end portion of a selected one of said

first optical fibers and an end portion of a selected one of said second optical fibers to be spliced to said selected first optical fiber, and simultaneously forming bent portions near said end portions of said selected first and second optical fibers;

extending said bent portions of said selected first and second optical fibers clamped to thereby move the end faces of said selected first and second optical fibers toward each other;

performing pre-discharging by means of first and second electrodes extending vertically and aligned with each other to thereby clean the end portions of said selected first and second optical fibers clamped;

aligning the optical axes of said selected first and second optical fibers clamped; and

performing discharging by means of said first and second electrodes to splice said selected first and second optical fibers clamped.

16. The optical fiber splicing method according to claim 15, further comprising the steps of:

clamping end portions of another pair of optical fibers adjacent to said selected first and second optical fibers spliced; and

splicing said another pair of optical fibers.

17. The optical fiber splicing method according to claim 15, wherein said step of aligning the optical axes comprises the steps of:

imaging the end portions of said selected first and second optical fibers by means of first and second cameras located so that the optical axes of said first and second cameras intersect at right angles; and

processing images obtained by said first and second cameras.

18. An optical fiber splicing method comprising the steps of:

mounting a tray on an XY table;

fixing to said tray an optical assembly having a substrate, a plurality of optical components mounted on said substrate, and a plurality of first optical fibers connected at their one ends to said optical components and arranged in spaced relationship with each other;

fixing to said tray a fiber sheet having first and second resin sheets and a plurality of second optical fibers sandwiched between said first and second resin sheets so as to be opposed to said first optical fibers;

clamping an end portion of a selected one of said first optical fibers and an end portion of a selected one of said second optical fibers to be spliced to said

selected first optical fiber, and simultaneously forming bent portions near said end portions of said selected first and second optical fibers;

extending said bent portions of said selected first and second optical fibers clamped to thereby move the end faces of said selected first and second optical fibers toward each other;

performing pre-discharging by means of first and second electrodes extending vertically and aligned with each other to thereby clean the end portions of said selected first and second optical fibers clamped;

aligning the optical axes of said selected first and second optical fibers clamped; and

performing discharging by means of said first and second electrodes to splice said selected first and second optical fibers clamped.

19. The optical fiber splicing method according to claim 18, further comprising the steps of:

horizontally moving said tray by means of said XY table after said splicing step;

clamping end portions of another pair of optical fibers adjacent to said selected first and second optical fibers spliced; and

splicing said another pair of optical fibers.